

PURCHASE DESCRIPTION

AUDIO FREQUENCY GENERATOR

FSNFT-B

- 1.0 GENERAL. This procurement requires a programmable and synthesized audio frequency generator capable of generating low distortion sine wave signals over a frequency range of 1 Hz to 600 kHz.
- 2.0 CLASSIFICATION. The equipment shall meet the requirements of MIL-T-28800, Type III, Class 5, Style E, Color R for Navy shipboard, submarine, and shore applications with the following modifications and exceptions:
- a. The non-operating temperature requirement is limited to the range of -20°C to +70°C.
  - b. The relative humidity requirement is limited to 95% noncondensating.
  - c. The operating and non-operating altitude requirement is not invoked.
  - d. The Electromagnetic Interference requirements of MIL-T-28800 are limited to CE01, CE03, CS01, CS02 (0.05 to 100 MHz), CS06, RE01 (back panel search excluded), RE02 (14kHz to 1 GHz), and RS03.
  - e. The warm-up time is extended to one hour.
- 3.0 OPERATIONAL REQUIREMENTS. The equipment shall be capable of generating signals within the parameters and accuracies specified herein.
- 3.1 Frequency Characteristics {F = Output Frequency}
- 3.1.1 Range: At least 1 Hz to 600 kHz {50 Ω output}  
At least 20 Hz to 600 kHz {600 Ω output}
  - 3.1.2 Resolution: At least 0.1 Hz {F < 1 kHz}; at least 1 Hz {F < 10 kHz};  
at least 10 Hz {F < 100 kHz}; at least 100 Hz {F < 600 kHz}
  - 3.1.3 Stability
    - 3.1.3.1 Internal: Better than  $\pm 5 \text{ppm}/10^8/\text{hr}$  (after 1 hr warm-up)
    - 3.1.3.2 External: Equal to the external frequency standard
    - 3.1.3.2.1 External Reference: 1, 5 or 10 MHz signal, TTL compatible
  - 3.1.4 Spectral Purity (Sine Wave Output) ( $\Delta F$  = offset from output frequency)
    - 3.1.4.1 Distortion: < 0.5% (-52 dBc)
    - 3.1.4.2 Power Line: < -45 dBc { $\Delta F$  < 300 Hz}
    - 3.1.4.3 Nonharmonics: < -55 dBc { $\Delta F$  > 300 Hz}

### 3.2 Output Characteristics

- 3.2.1 Sine Wave Output:
  - 3.2.1.1 Amplitude:
    - 3.2.1.1.1 At least 50 mVrms to 5 Vrms into matched 600 $\Omega$  load
    - 3.2.1.1.2 At least 1 mVrms to 5 Vrms into matched 50 $\Omega$  load
  - 3.2.1.2 Impedance:
    - 3.2.1.2.1 600  $\Omega \pm 10\%$
    - 3.2.1.2.2 50  $\Omega \pm 10\%$
  - 3.2.1.2 Voltage accuracy:  $\pm 10\%$  {into matched load}
  - 3.2.1.3 Flatness:  $\pm 1$  dB (1 kHz ref)
  - 3.2.1.4 Display: Digital; at least 3 digits
    - 3.2.1.4.1 Units: At least Volts
    - 3.2.1.4.2 Resolution: 0.1 dB minimum
  - 3.2.1.5 Connector: Type BNC female
- 3.2.2 Squarewave Output: {At least 1 Hz < F < 50 kHz}
  - 3.2.2.1 Amplitude: TTL levels, positive
  - 3.2.2.2 Rise/Fall Time: < 1  $\mu$ s
  - 3.2.2.3 Impedance: 50  $\Omega \pm 10\%$

### 4.0 GENERAL REQUIREMENTS.

- 4.1 Power: 115 and 230 Vac  $\pm 10\%$ , 50 and 60 Hz, 90 watts maximum
- 4.2 Calibration Interval: The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.
- 4.3 Dimensions: The total volume of the unit shall not exceed 900 in<sup>3</sup> (14,750 cm<sup>3</sup>).
- 4.4 Weight: The total weight of the unit shall not exceed 15 lbs (6.8 kg).
- 4.5 Remote Control: Unit must be controllable via the IEEE-488 interface bus; as a minimum, all front panel functions (except AC power) must be remotely controllable when the unit operates as a listener on the bus.